

D. SHIELDS.  
Oil-Stove.

No. 223,398.

Patented Jan. 6, 1880.

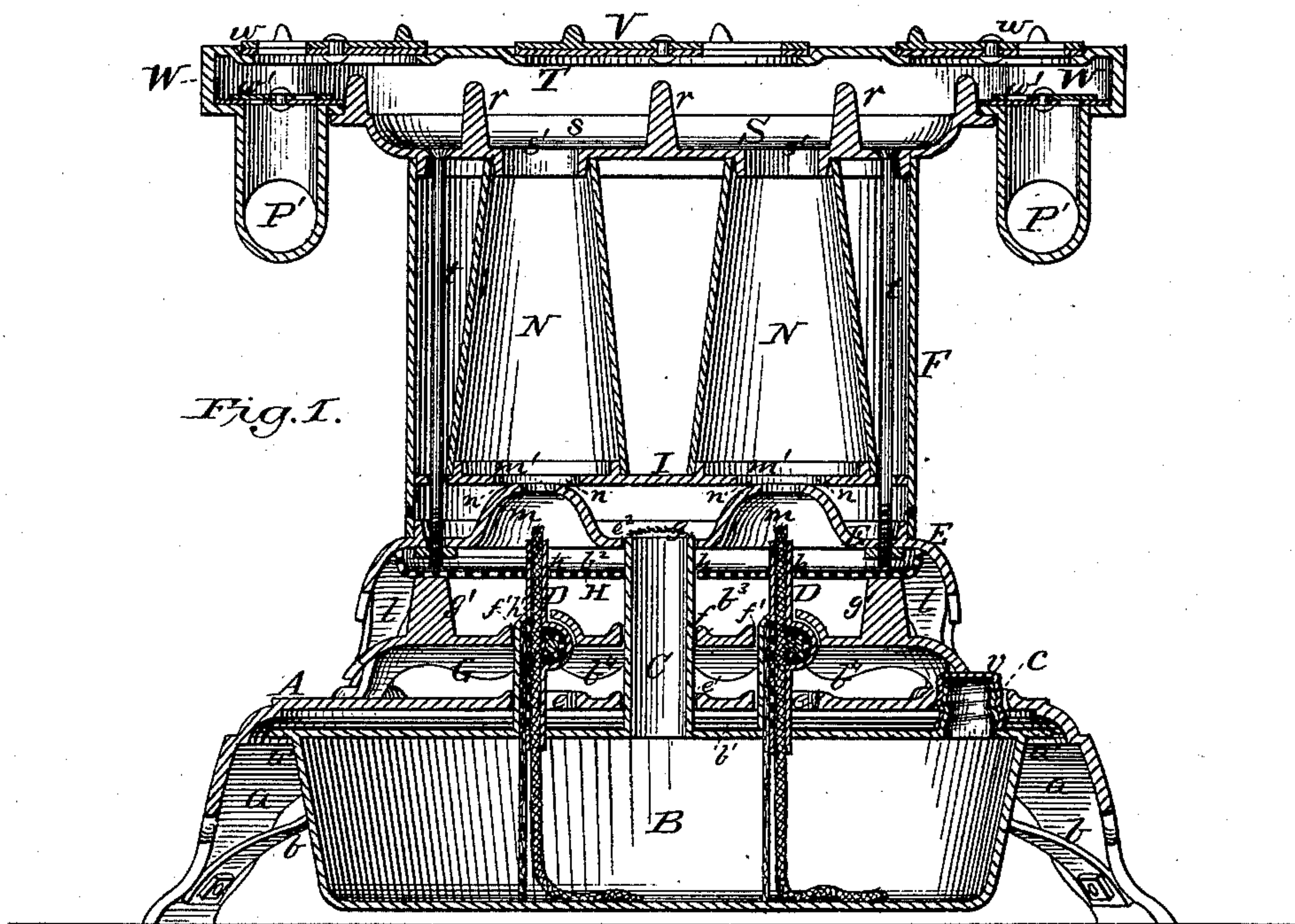


Fig. 2.

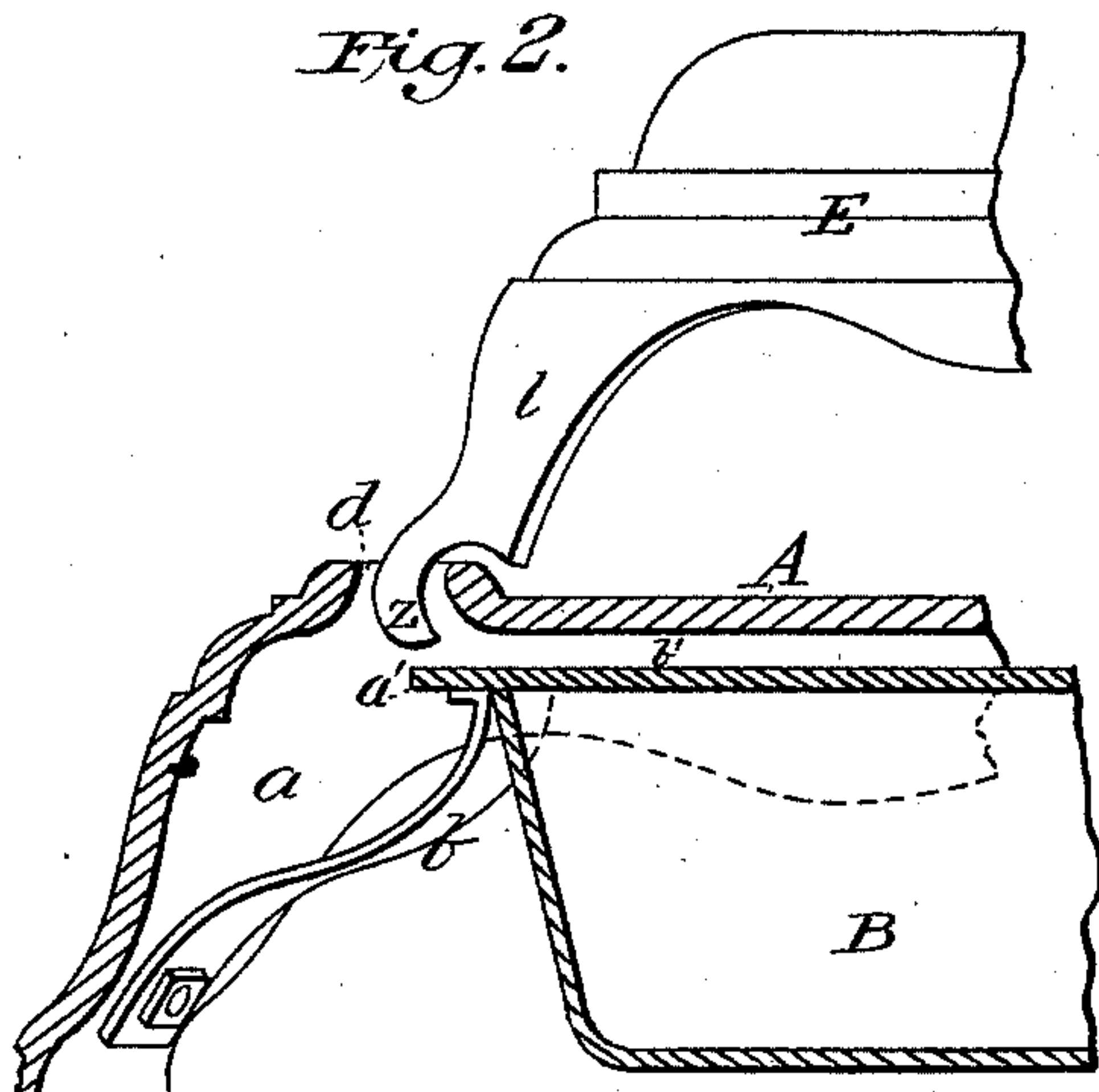
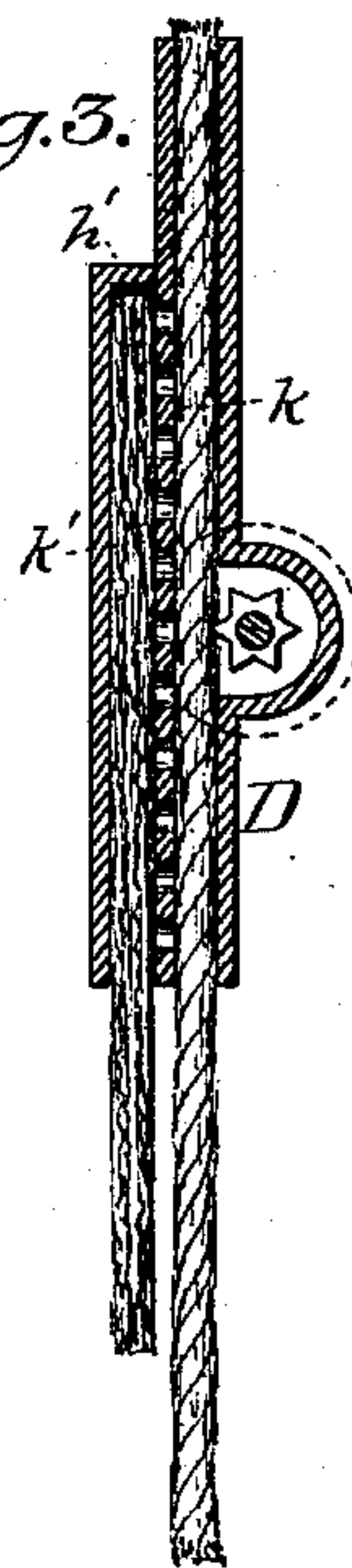


Fig. 3.



WITNESSES

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# UNITED STATES PATENT OFFICE.

DAVID SHIELDS, OF SING SING, NEW YORK.

## OIL-STOVE.

SPECIFICATION forming part of Letters Patent No. 223,398, dated January 6, 1880.

Application filed November 26, 1879.

*To all whom it may concern:*

Be it known that I, DAVID SHIELDS, of Sing Sing, in the county of Westchester and State of New York, have invented a new and valuable Improvement in Oil-Stoves; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a representation of vertical cross-section of my improved oil-stove. Fig. 2 is a detail of the same, and Fig. 3 is a detail showing section of my wick-tube.

This invention has relation to oil-stoves; and it consists in the construction and novel arrangement of the spring-supports under the main bed-plate, the gauze-covered vapor-flue from the reservoir and the vapor-chamber and flues surrounding the burner-slots, the perforated air or draft equalizer and its raised supporting-plate, the raised burner-plate and its connected drum and chimneys, and the detachable hinge-connection of said burner-plate and bed-plate, all as hereinafter shown and described.

In the accompanying drawings, the letter A designates the bed-plate of this stove, supported by legs *a*, and having attached to the legs the supporting-springs *b*. Through the bed-plate are made certain apertures *c* and semicircular or elongated hinge-holes *d*, and in its central portion are the slots *e e'*, for the wick-tubes and vapor-flue of the reservoir. The latter consists of a pan, B, or vessel of flat form, having a marginal flange, *a'*, whereby it is engaged with the ends of the supporting-springs *b*, when pressed upward between the same, its position being such that its upper surface is somewhat below the under side of the bed-plate, leaving an air-space, *b'*, between the two.

C represents the central vapor-flue, which extends upward from the reservoir through the central slot, *e*, and D are the wick-tubes on each side of said vapor-tube, extending through the side slots, *e'*. The vapor-tube is covered with wire-gauze *g*, and extends also

through a central slot, *e*<sup>2</sup>, in the burner-plate E, which forms the base of the drum or body portion F of the stove.

Upon the top of the bed-plate rests, by its bent-down corners or legs, an intermediate supporting-plate, G, slotted at *f f'* for the passage of the vapor-tube and wick-tubes, and provided with studs *g'*, to support the perforated draft guard or equalizer H, also provided with slots *h*, for the vapor and wick-tubes. The wick-tubes D are shouldered at *h'*, and below this shoulder are double, as shown, a perforated partition, *k*, serving to divide the main wick-passage from the blind passage *k'*, in which is permanently located a piece of wicking or felt, which serves as a feeder to the main or burning wick, keeping it saturated.

The burner-plate E extends over the air-equalizer and its support, and rest by its legs *l* upon the bed-plate. It is arranged at such a height that there is an air-space, *b*<sup>2</sup>, between its under side and the air-equalizer H, and below the latter an air-space, *b*<sup>3</sup>, and below the supporting-plate G of said equalizer an air-space, *b*<sup>4</sup>. The object of these successive air-spaces is to provide for free access of air to the wick-tubes by horizontal flues or air-spaces, and at the same time to prevent the spread of the heat from the wick-tubes downward in the direction of the reservoir.

The burner-plate E is provided with slotted burner-convexities *m* on each side of the central slot, *e*<sup>2</sup>, through which the vapor-flue passes, and upon said burner-plate is seated the drum or body F, having near its lower end a diaphragm, I, which is made with lateral slots *m'*, corresponding to the slots of the burner cones or convexities, but of somewhat larger dimensions, as shown. It has no central slot, as the gauze-covered end of the vapor-flue terminates below it. The space, therefore, under this diaphragm I and above the burner-plate E forms a vapor-chamber, receiving the vapor from the reservoir through the vapor-flue, and delivering it through the surrounding crevices or apertures *n* to the burners, where it is consumed.

N represents the chimneys, which extend upward from the diaphragm-plate I, said chim-



neys being usually made with front openings, which are closed by means of mica plates and a hinged light-door or mica-holder.

S indicates the cap of the drum or body, 5 having the supporting-studs *r* and marginal flange *s*. It is bolted to the burner-plate by means of through-bolts *t*, which connect the parts of the body *F* together.

The chimney-slots *s'* in the cap are flanged 10 underneath to fit the tops of the chimneys *N* and keep them in position.

T represents an upper draft plate or attachment, which is designed to be seated on the cap *S*, and is provided with recessed sides or 15 wings *W*, above which are register-valves or gates *w*, and below which are flue-pipes *P'*, having at their upper ends, and under the main valves *w*, smaller register valves or gates *w'*.

V represents a central register-plate, which 20 is made removable and reversible, and has supporting-studs on one side.

By means of these registers and flues the draft may be kept free while different articles are being cooked, or when the pot or pan is removed 25 from the main central heat to a side heat, or in the reverse direction; and by means of connections all disagreeable odor from the oil may be passed off through the pipes *P'*.

The feet of the rear legs of the burner-plate 30 *E*, which is also the base-plate of the drum, are made with curved claws *z*, which, engaging with the hinge-holes *d* of the bed-plate, serve to keep these plates in exact relative position, and as hinges to enable the drum to be 35 tipped backward and supported in an inclined position when access is desired to the wick-tubes, vapor-flue, or filling-neck *v*.

Having described this invention, what I claim as my invention, and desire to secure 40 by Letters Patent, is—

1. The combination, with the gauze-covered vapor-flue *C* from the oil-reservoir and the burner-cones *m*, of the horizontal vapor-cham-

ber into which said vapor-flue projects, and the crevice-passages *n*, surrounding the burner-slots, substantially as specified. 45

2. The combination, with the oil-reservoir *B* and the bed-plate *A*, supported upon legs *a*, of the under supporting-springs, *b*, engaging the margin of said oil-reservoir, substantially as 50 specified.

3. The combination, in an oil-stove, with the bed-plate *A* and the burner-plate *E*, supported thereon, of the intermediate studded supporting-plate, *G*, and the perforated air-equalizer 55 *H*, resting thereon, thereby forming the horizontal air-spaces *b<sup>2</sup> b<sup>3</sup> b<sup>4</sup>*, substantially as specified.

4. The combination, with the hinge-hole bearings *d* of the bed-plate, of the rear legs of the base-plate of the burner-drum, having claws 60 *z*, engaging with the hinge-holes and adapted to support said drum in an inclined position when tipped backward, substantially as specified.

5. The oil-stove consisting of the bed-plate 65 *A*, burner-drum *F*, oil-reservoir *B*, air-equalizer *H*, and intermediate supporting-plate, *G*, for the latter, all detachable, and separated by horizontal air-spaces *b' b<sup>2</sup> b<sup>3</sup> b<sup>4</sup>*, substantially as specified. 70

6. The combination, with the burner-plate *E*, having the slotted burner-cones *m*, of the drum *F*, having the diaphragm *I*, slotted at 75 *m'* to correspond with the slots of the burner-cones, and forming a horizontal vapor-chamber, with crevice-passages *n* around the slots of said burner-cones, whereby the gases are confined below said diaphragm and conducted to the burners, substantially as specified.

In testimony that I claim the above I have 80 hereunto subscribed my name in the presence of two witnesses.

DAVID SHIELDS.

Witnesses:

PHIL. C. MASI,  
JOHN A. ELLIS.